

AMENDMENTS TO THE CLAIMS

In accordance with 37 C.F.R. §1.121(c), please amend the claims as indicated in marked-up form below, where additions are underlined, deletions are struck through, and new claims are presented without markings.

1. (Currently Amended) A tool comprising:

a base portion including a pattern ~~to impress the pattern~~ for impression on a substrate, wherein the base portion comprises a nickel alloy chosen from the group consisting of a nickel-cobalt alloy, a nickel-manganese alloy, and a nickel-iron alloy and the pattern comprises a plurality of raised portions and a plurality of recessed portions; and

a nickel layer deposited over the base portion, wherein the nickel layer has a hardness greater than the hardness of the base portion.

2. (Original) The tool of claim 1, wherein the base portion comprises nickel.

3. (Previously Presented) The tool of claim 1, wherein the nickel layer comprises a composite layer.

4. (Currently Amended) The tool of claim 3, wherein the composite layer includes nickel and a reinforcement constituent chosen from the group consisting of silicon carbide, aluminum oxide, diamond particles, and ~~polytetrafluoroethylene~~ polytetrafluoroethylene.

5. (Previously Presented) The tool of claim 1, wherein the nickel layer has been annealed.

6. (Original) The tool of claim 1, wherein the substrate is a package substrate.

7-8. (Canceled)

9. (Previously Presented) The tool of claim 1, wherein the nickel layer comprises a nickel-phosphorous layer.

10. (Original) The tool of claim 1, wherein the pattern is to pattern an interconnect structure.

11-27. (Canceled)

28. (Currently Amended) A microtool comprising:

a base portion including a pattern to pattern interconnects in a dielectric layer on a package substrate, wherein the base comprises a nickel alloy chosen ~~from~~ from the group consisting of a nickel-cobalt, a nickel-manganese alloy, and a nickel-iron alloy and the pattern comprises a plurality of raised portions and a plurality of recessed portions; and

a nickel layer deposited over the base portion, wherein the nickel layer is to increase an overall hardness of the microtool, and wherein the nickel layer comprises a composite including a reinforcement constituent chosen from the group consisting of silicon carbide, diamond particles, aluminum oxide, and polytetrafluoroethylene.

29. (Currently Amended) A tool comprising:

a base portion including a pattern to impress the pattern on a substrate, wherein the base comprises a nickel alloy chosen from the group consisting of a nickel-cobalt alloy, a nickel-manganese alloy, and a nickel-iron alloy and the pattern comprises a plurality of raised portions and a plurality of recessed portions; and

a composite layer deposited over the base portion, wherein the composite layer includes nickel and a reinforcement constituent chosen from the group consisting of silicon carbide, aluminum oxide, diamond particles, and ~~polytetrafluoroethylene~~ polytetrafluoroethylene.

30. (Currently Amended) A tool comprising:

a base portion including a pattern to impress the pattern on a substrate; and

a nickel layer deposited over the base portion, wherein the base comprises a nickel alloy chosen from the group consisting of a nickel-cobalt alloy, a nickel-manganese alloy, and a nickel-iron alloy and the pattern comprises a plurality of raised portions and a plurality of recessed portions.

31. (Previously Presented) The microtool of claim 28, wherein the nickel layer comprises a nickel alloy chosen from the group consisting of a nickel-phosphorous alloy and a nickel-boron alloy.

32-34. (Canceled)

35. (Currently Amended) The tool of claim 30 ~~wherein the nickel layer further~~ comprises a composite including a reinforcement constituent chosen from the group consisting of silicon carbide, diamond particles, aluminum oxide, and ~~polytetrafluoroethylene~~ polytetrafluoroethylene.

36. (Previously Presented) The tool of claim 30, wherein the nickel layer comprises a nickel alloy chosen from the group consisting of a nickel-phosphorous alloy and a nickel-boron alloy.

37. (Previously Presented) The microtool of claim 28, wherein the nickel layer is less than 10 microns thick.

38. (Previously Presented) The tool of claim 29, wherein the composite layer has a hardness value greater than 1100.

39. (Previously Presented) The tool of claim 29, wherein the substrate is a package substrate.